

## 2015 Research Annual Report

# Emergency Medicine

### RESEARCH AND TRAINING DETAILS



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Faculty	42
Joint Appointment Faculty	3
Research Students	6
Support Personnel	47
Direct Annual Grant Support	\$1,603,933
Peer Reviewed Publications	77

### CLINICAL ACTIVITIES AND TRAINING

Staff Physicians	50
Clinical Fellows	12
Outpatient Encounters	163,037

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## Research Highlights

Lynn Babcock, MD, MS; Tara Rhine, MD, MS – Traumatic Brain Injury: Diagnostics,

## Prognostics and Rehabilitation

Emergency medicine faculty members, Drs. [Babcock](#), [Rhine](#), [Chan](#), [Alessandrini](#), [Gittelman](#), and [Pomerantz](#), have been collaborating within the institution with other researchers from the divisions of [Pediatric Physical Medicine and Rehabilitation](#), [Sports Medicine](#), [Trauma](#), [Neurology](#), and [Biostatistics and Epidemiology](#) to advance knowledge and improve care of traumatic brain injury across the continuum of care: from diagnosis, prognosis, rehabilitation and prevention. On the clinical front, the group is working to identify and stratify children with mild injuries who do not need head CTs (Alessandrini) and improve their care by implementing an observation care pathway that seeks to standardize practices and potentially further decrease rates of head CTs (Rhine, Babcock). They have developed and are assessing the effectiveness of an innovative multi-modal virtual outpatient treatment program for kids with concussion that will promote patient engagement in the early recovery process through a combination of self-monitoring and cognitive behavioral coping skills (Babcock). To further understand the epidemiology and outcomes of children in the United States requiring inpatient care for traumatic brain injury, the group is analyzing the Pediatric Health Information System database in hopes to highlight effective care practices (Rhine, Babcock). They are planning to assess the impact of emergency department treatment of post-concussive headache on sequelae following traumatic brain injury (Chan, Babcock). Applying translational science, they are uncovering approaches to improve clinicians' diagnostic and prognostic acumen for pediatric traumatic brain injury by studying serum biomarkers (Babcock), advanced radiologic techniques (Babcock), and novel postural control analytics (Rhine).

## Michelle Eckerle, MD, MPH – Global Health Research: Malawi

[Michelle Eckerle, MD, MPH](#) was awarded a [Fogarty Global Health Fellowship](#) and spent ten months studying viral etiologies of acute respiratory illness among children admitted at Kamuzu Central Hospital in Lilongwe, Malawi. During her time there, she was also active in clinical care and educational efforts, both for Malawian trainees as well as visiting Cincinnati Children's residents and fellows. She was subsequently awarded a [Thrasher Early Career Award](#) to characterize the urine metabolite profiles of Malawian children with viral respiratory illness compared with those of healthy controls. This research in the emerging field of metabolomics may lead to further work in improving the accuracy of diagnosis and treatment of respiratory illness in low resource settings.

## Todd Florin MD, MSCE – Acute Lower Respiratory Tract Infection; Etiology, Severity and Biomarkers

[Todd Florin, MD, MSCE](#), leads a research program focused on the acute care of pediatric lower respiratory tract infections, and is the principal investigator of Catalyzing Ambulatory Research in Pneumonia Etiology and Diagnostic Innovations in Emergency Medicine (CARPE DIEM). This study, which began enrollment in July 2013, and has received funding from the [National Institutes of Health \(NIH\)](#) (including a KL2 award from the [CCTST](#)), [Gerber Foundation](#) and a [Cincinnati Children's Trustee Award](#), is pursuing three major areas of investigation: (1) understanding pneumonia pathophysiology; (2) improved prediction of pneumonia severity and risk stratification; and (3) enhanced differentiation of pneumonia etiology. This study is a multidisciplinary effort that involves investigators and collaborators from Emergency Medicine (Drs. T. Florin, MD, MSCE; and [R. Ruddy, MD](#)); [Hospital Medicine](#) (Drs. [L. Ambroggio, PhD](#) (co-PI of CARPE DIEM) and [S. Shah, MD](#)); [Infectious Diseases](#) (Dr. S. Shah); and [Biostatistics and Epidemiology](#) (Drs. L. Ambroggio, PhD; [J. Meinzen-Derr, PhD](#); [B. Huang, PhD](#); and [H. Sucharew, PhD](#)). Current CARPE DIEM research activities are focused on the use of biomarkers to develop a clinical prediction rule for pneumonia severity (Dr. Florin) and the use of NMR metabolomics to differentiate various pneumonia etiologies (Dr. Ambroggio). In addition, we are establishing a biorepository of nasal, blood and urine specimens from children with pneumonia in collaboration with the [Cincinnati Children's Biobank Core Facility](#). Dr. Florin's other research activities are focused on resource utilization, management of bronchiolitis, and multicenter research in the Emergency Department.

## Jacqueline Grupp-Phelan, MD, MPH – ED Screening and Brief Mental Health Intervention

Jackie Grupp-Phelan, MD, MPH, along with nationally known suicidology experts Cheryl King, PhD, from the University of Michigan, and David Brent, MD, from Western Psychiatric Institute of Pittsburgh, are multi-principal investigators in the newly launched UO1 Emergency Department Screen for Teens at Risk for Suicide (ED-STARS). This multi-site collaborative study with the Pediatric Emergency Care and Applied Research Network (PECARN) will determine prospectively the optimal suicide risk screening strategy for youth who present to the pediatric ED and develop and validate a parsimonious algorithm for risk stratification to facilitate the triage of youth to “acute risk,” “at risk,” and “no further follow-up needed” groups, with recommendations for each group. Dr. Grupp-Phelan is a multi-PI along with Jeff Bridge, PhD at Nationwide Children’s. They are in the final year of an R01 supporting a randomized control trial testing the effectiveness of a brief treatment engagement intervention for adolescent emergency department patients with non-psychiatric presenting complaints who are identified by screening to be at risk for suicidal behaviors.

## Benjamin Kerrey, MD, MPH; Matthew Mittiga MD; Andrea Rinderknecht MD – Management of Pediatric Airways and Critical Care Procedures

This research team over the past seven years has led discovery and implementation of best practice for pediatric emergency physicians in emergent pediatric airway management. The initial efforts were to understand the practice of, and then improve the safety and reliability of, rapid sequence intubation (RSI) in the ED. The three studies published ran the gamut of knowledge generation to translation of our findings into improved care for our patients. The initial study found more frequent problems with RSI than had been reported for children in an ED. The validation of clinical care using video demonstrated what no one had reported—higher failure rates at RSI attempt and oxygen desaturation that we believed was unnecessary and potentially harmful. This was accentuated in those children under 2 years of age (*Academic Emerg Med*, 2015). The implementation of a RSI check list within a multidisciplinary team has demonstrated and sustained improved outcomes; increased the rate of success; and reduced the rate of desaturations during RSI (*BMJ Qual and Safety*, 2015). The team is also collaborating with two other pediatric EDs (Children’s Hospital of Philadelphia and Children’s National) to establish a multicenter pediatric resuscitation registry based on video review. The investigators received funding from the Zoll Foundation in 2014 to establish this registry and will initiate the multicenter work in FY16.

## Michael Gittelman, MD, and Wendy Pomerantz MD, MS – Injury Prevention Research

Injury Prevention Research is now turning to implementation projects that include the modeling of safe sleep programs within the six Ohio Children’s Hospitals (EASE Project), the results of which were presented at the Pediatric Academic Society Meeting APA Plenary Session in 2015 by Mike Gittelman, MD. He received the Ohio AAP Ellen R. Schmidt Award that recognizes a Safe States Alliance member who has made a significant contribution to the field of injury and violence prevention. He was recognized for the development of an outstanding statewide injury and violence prevention program. His work on the Maintenance of Certification Part 4 Quality Improvement project is now used by Ohio primary care providers during well child office visits for children 0 to 1 years of age. Other important research and QI implementation initiatives included the work of the Injury Prevention/Safe Sleep Collaborative implemented in four states' practices; the work of the “Put a Lid on It” bicycle helmet program which involved social media and the targeting of children to use helmets when riding; and a multi-center paper describing reduction of burns from glass fronted gas fireplaces. The team of Mike Gittelman and Wendy Pomerantz, MD, MS, has been truly innovative at providing opportunities for injury prevention efforts to make a difference in our community, as well as in a much larger regional and national community.

## Melinda Mahabee-Gittens, MD, MS – ED Based Tobacco Cessation Interventions

The research of Melinda Mahabee-Gittens, MD, MS, CTTS, focuses on the development and testing of Emergency Department (ED) based tobacco cessation interventions for caregivers. She is a principal investigator (PI) on a National Cancer Institute funded study (R21) that will develop, refine, and integrate an electronic health record (Epic-based) tobacco treatment decision support system tool for children in the ED. Dr. Mahabee-Gittens is the PI of a Eunice Kennedy

Shriver National Institute of Child Health and Human Development (R01) grant that will test the efficacy of a screening, brief intervention, and assisted referral to treatment (SBIRT) intervention for caregivers. The study will highlight the effects of tobacco smoke extract (TSE) on their child's health compared to a control condition in which caregivers will receive instruction on healthy lifestyle choices to improve their child's health.

Richard M Ruddy, MD; Lynn Babcock MD, MS; Hamilton Schwartz MD, MEd; Evaline Alessandrini, MD, MSCE; Seema Bhatt, MD, MS; Jacqueline Grupp-Phelan, MD, MPH – Pediatric Emergency Care Applied Research Network (PECARN), Hospitals of the Midwest Emergency Research Node (HOMERUN)

Cincinnati Children's has been a member of the Health Resources and Service Administration (HRSA)/Maternal and Child Health Bureau (MCHB) funded Pediatric Emergency Care Applied Research Network (PECARN) since 2001, and has been one of six nodes since 2011. Cincinnati Children's has once again been funded as the nodal center with R. Ruddy, MD, as the nodal PI through 2019. The node includes the Emergency Department from Cincinnati Children's, Children's Hospital of Wisconsin and St. Louis Children's Hospital at Washington University. Nicole McClanahan is the nodal administrator and secretary elect of the PECARN Steering Committee, L. Babcock, MD, MS, is the site principal investigator (PI) for Cincinnati. H. Schwartz, MD, is the pre-hospital scientific advisor for the next four years. Important studies for children currently under way include:

- 1) Electronic Health Record registry (E. Alessandrini, MD, MSCE, as co-investigator (co-I)) implementing all of the ED records and making a quality report card by site and provider.
- 2) Probiotics for Acute Gastroenteritis (Seema Bhatt, MD, and R. Ruddy, MD, as site PI) – RCT for healthy children less than 4 years of age with gastroenteritis.
- 3) Suicide Screening (J. Grupp-Phelan, MD, MPH, as U01 co-PI) – above.
- 4) Knowledge Translation of PECARN Head Injury Rule (E. Alessandrini as co-I) – use of decision support to reduce CT rates in very low risk children with head injury.
- 5) Alcohol Screening in Teens (J. Grupp-Phelan as site PI) – validate the Center for Disease Control (CDC) Alcohol screening questions and perform follow up for a cohort.
- 6) Biosignatures in Infants < 2 months with Fever (R. Ruddy as site PI) – with second RO1 to continue the work just receiving funding.
- 7) Prehospital and ED Validation of Risk for Cervical Spine Injury (H. Schwartz as site PI) – a nodal study.
- 8) Safety in the ED (R. Ruddy as site PI).

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## Significant Publications

**Mahabee-Gittens EM**, Collins BN, Murphy S, Woo H, Chang Y, Dempsey J, Weiley V, Winickoff JP. **The Parent-Child Dyad and Risk Perceptions among Parents Who Quit Smoking.** *Am J Prev Med.* 2014 Nov;47(5):596-603.

This study had three important findings. First, pediatric providers' smoking cessation advice and support should begin when their children are infants and preschoolers, and parents who have recently quit may be particularly primed for another attempt. Second, providers' advice to parental smokers should emphasize the effects of tobacco smoke exposure on their child's health and the benefits of quitting on both their child's and their own current and future health. Finally, consistent with broader research in tobacco control, this study emphasizes that messaging may be more important to increase in families with less education and lower socioeconomic status.

**Murtagh Kurowski E**, Shah SS, Thomson J, Statile A, Sheehan B, **Iyer S**, White C, Ambroggio L. **Improvement Methodology Increases Guideline Recommended Blood Cultures in Children with Pneumonia.** *Pediatrics.* 2015 Apr;135(4):e1052-9.



Community acquired pneumonia (CAP) is a common cause of hospitalization in children. Blood cultures are the most widely available diagnostic tests for identifying a bacterial pathogen in children with CAP. This study used improvement methodology to increase ordering of blood cultures in children hospitalized with CAP and is in alignment with the recent Infectious Disease Society of America (IDSA)/Pediatric Infectious Disease Society (PIDS) guideline. Within six months, the percentage of patients admitted with CAP who had blood cultures ordered increased from 53% to 100%. This change has been sustained for 12 months. Overall, 239 (79%) of the 303 included patients had a blood culture ordered; of these, six (2.5%) were positive. Patients who had a blood culture did not have an increased LOS compared with those without a blood culture. These results support obtaining blood cultures on all patients admitted with CAP without negative effects on LOS in a setting with a reliably low false-positive blood culture rate. The efficient implementation of evidence and its being sustained remains critical to our work of improving outcomes for children here at Cincinnati Children's.

**Florin TA**, Shaw KN, Kittick M, Yakscoe S, Zorc JJ. **Nebulized Hypertonic Saline for Bronchiolitis in the Emergency Department: A Randomized Clinical Trial.** *JAMA Pediatr.* 2014 Jul;168(7):664-70.

Acute bronchiolitis is the most frequent lower respiratory tract infection in infants, yet there are no effective therapies available. Initial studies found that nebulized 3% saline was effective at reducing hospital length of stay in infants with bronchiolitis; however, its efficacy in the emergency department (ED) setting is unclear. This randomized clinical trial of 62 infants compared nebulized 3% saline to nebulized normal saline in infants 2-24 months with bronchiolitis cared for in the ED. We found that infants with bronchiolitis in the emergency department had less improvement after receiving 3% saline compared with those who received normal saline. Based on these results and the existing evidence, administration of a single dose of 3% saline does not appear to be indicated to treat bronchiolitis in the acute care setting.

Depinet HE, **Iyer SB**, **Hornung R**, **Timm NL**, **Byczkowski TL**. **The Effect of Emergency Department Crowding on Reassessment of Children with Critically Abnormal Vital Signs.** *Acad Emerg Med.* 2014 Oct 21;10(10):1116-20.

The aim was to assess the impact of measures of crowding on the important task of responding to abnormal vital signs by interventions and with patient reassessment. We found delays in the reassessment of critically abnormal vital signs (heart rate, respiratory rate and blood pressure) associated with times of crowding in the ED despite an electronic reminder in the EHR. We utilized validated measures of crowding: the number of patients in the lobby, the overall ED census, and the number waiting admission. Future work is needed to develop systems to mitigate these delays.

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## Division Publications

1. Alessandrini EA, Wright JL. **The continuing evolution of pediatric emergency care.** *JAMA Pediatr.* 2015; 169:523-4.
2. Anderson BL, Guiot AB, Timm NL. **An atypical presentation of atypical Kawasaki disease.** *Pediatr Emerg Care.* 2014; 30:491-2.
3. Anderson BL, Pomerantz WJ, Gittelman MA. **Intentional injuries in young Ohio children: is there urban/rural variation?** *J Trauma Acute Care Surg.* 2014; 77:S36-40.
4. Aronson PL, Thurm C, Alpern ER, Alessandrini EA, Williams DJ, Shah SS, Nigrovic LE, McCulloh RJ, Schondelmeyer A, Tieder JS, Neuman MI, Febrile Young Infant Research C. **Variation in care of the febrile young infant <90 days in US pediatric emergency departments.** *Pediatrics.* 2014; 134:667-77.
5. Aronson PL, Thurm C, Williams DJ, Nigrovic LE, Alpern ER, Tieder JS, Shah SS, McCulloh RJ, Balamuth F,

Schondelmeyer AC, Alessandrini EA, Browning WL, Myers AL, Neuman MI, Febrile Young Infant Research C.

**Association of clinical practice guidelines with emergency department management of febrile infants  $\leq 56$  days of age.** *J Hosp Med.* 2015; 10:358-65.

6. Bennett B, Bechtel K. **Management and sequelae of sexual abuse in children and adolescents.** In: DM Lindberg, AB Middleman, JE Drutz, eds. *UpToDate*. Waltham, MA: UpToDate; 2014.
7. Best AM, Dixon CA, Kelton WD, Lindsell CJ, Ward MJ. **Using discrete event computer simulation to improve patient flow in a Ghanaian acute care hospital.** *Am J Emerg Med.* 2014; 32:917-22.
8. Breitwieser CL, Vaughn LM. **"A day in my life" photography project: the silent voice of pediatric bone marrow transplant patients.** *J Pediatr Oncol Nurs.* 2014; 31:284-92.
9. Brenkert TE, Gonzalez Del Rey J. **Pelvic Trauma and Genitourinary Injury.** In: SM Selbst, K Cronan, eds. *Pediatric Emergency Medicine Secrets*. Philadelphia, PA: Elsevier Saunders; 2014:506-510.
10. Bridge JA, Horowitz LM, Fontanella CA, Grupp-Phelan J, Campo JV. **Prioritizing research to reduce youth suicide and suicidal behavior.** *Am J Prev Med.* 2014; 47:S229-34.
11. Caruso MC, Gittelman MA, Widecan ML, Luria JW. **Pediatric emergency department discharge prescriptions requiring pharmacy clarification.** *Pediatr Emerg Care.* 2015; 31:403-8.
12. Chan S, Kurowski B, Byczkowski T, Timm N. **Intravenous migraine therapy in children with posttraumatic headache in the ED.** *Am J Emerg Med.* 2015; 33:635-9.
13. Chang TP, Pham PK, Sobolewski B, Doughty CB, Jamal N, Kwan KY, Little K, Brenkert TE, Mathison DJ. **Pediatric emergency medicine asynchronous e-learning: a multicenter randomized controlled Solomon four-group study.** *Acad Emerg Med.* 2014; 21:912-9.
14. Couto TB, Farhat SC, Geis GL, Olsen O, Schvartsman C. **High-fidelity simulation versus case-based discussion for teaching medical students in Brazil about pediatric emergencies.** *Clinics (Sao Paulo).* 2015; 70:393-9.
15. Couto TB, Kerrey BT, Taylor RG, FitzGerald M, Geis GL. **Teamwork skills in actual, in situ, and in-center pediatric emergencies: performance levels across settings and perceptions of comparative educational impact.** *Simul Healthc.* 2015; 10:76-84.
16. Dandoy CE, Davies SM, Flesch L, Hayward M, Koons C, Coleman K, Jacobs J, McKenna LA, Olomajeye A, Olson C, Powers J, Shoemaker K, Jodele S, Alessandrini E, Weiss B. **A team-based approach to reducing cardiac monitor alarms.** *Pediatrics.* 2014; 134:e1686-94.
17. DeJonckheere M, Muchmore M, Vaughn LM, Wagner E. (2014) **Connecting self, school, and community in the Girls' Action Teams: An arts-based youth participatory action research project.** SAGE Research Methods Cases. SAGE Research Methods, Thousand Oaks, CA. .
18. DeJonckheere MJ, Vaughn LM, Jacquez F. **Latino Immigrant Youth Living in a Nontraditional Migration City: A Social-Ecological Examination of the Complexities of Stress and Resilience.** *Urban Education.* 2014; :1-28.
19. Depinet HE, Iyer SB, Hornung R, Timm NL, Byczkowski TL. **The effect of emergency department crowding on reassessment of children with critically abnormal vital signs.** *Acad Emerg Med.* 2014; 21:1116-20.
20. Dexheimer JW, Abramo TJ, Arnold DH, Johnson K, Shyr Y, Ye F, Fan KH, Patel N, Aronsky D. **Implementation and evaluation of an integrated computerized asthma management system in a pediatric emergency department: a randomized clinical trial.** *Int J Med Inform.* 2014; 83:805-13.

21. Dexheimer JW, Borycki EM, Chiu KW, Johnson KB, Aronsky D. **A systematic review of the implementation and impact of asthma protocols.** *BMC Med Inform Decis Mak.* 2014; 14:82.
22. Dexheimer JW, Scheid B, Babaooff A, Martens S, Kennebeck S. **Preparing for International Classification of Diseases, 10th Revision, Clinical Modification implementation: strategies for maintaining an efficient workflow.** *Pediatr Emerg Care.* 2015; 31:65-9.
23. Dixon CA, Ammerman RT, Dexheimer JW, Meyer B, Jung H, Johnson BL, Elliott J, Jacobs T, Pomerantz WJ, Mahabee-Gittens EM. **Development of iBsafe: A Collaborative, Theory-based Approach to Creating a Mobile Game Application for Child Safety.** *AMIA Annu Symp Proc.* 2014; 2014:477-85.
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33. Gittelman MA, Pomerantz WJ, McClanahan N, Damon A, Ho M. **A computerized kiosk to teach injury prevention: is it as effective as human interaction?** *J Trauma Acute Care Surg.* 2014; 77:S2-7.
34. Gonzalez Del Rey J. **[Role of parents in paediatric emergencies: tradition, conflict or improvement].** *An Pediatr (Barc).* 2015; 82:1-3.
35. Hariharan S. **Using Advance Practice Registered Nurses and Physician Assistants to Ease Physician Shortage.** *Physician Leadersh J.* 2015; 2:46-51.
36. Huda R, Strait RT, Tuzun E, Finkelman FD, Christadoss P. **IgG1 deficiency exacerbates experimental autoimmune myasthenia gravis in BALB/c mice.** *J Neuroimmunol.* 2015; 281:68-72.
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77. Yuan W, Wade SL, Babcock L. **Structural connectivity abnormality in children with acute mild traumatic brain injury using graph theoretical analysis.** *Hum Brain Mapp.* 2015; 36:779-92.

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## Faculty, Staff, and Trainees

### Faculty Members

**Richard M. Ruddy, MD**, Professor

**Leadership** Division Director; Nodal PI - Pediatric Emergency Care Applied Research Network (PECARN), Hospitals of the Midwest Emergency Research Node (HOMERUN)

**Research Interests** Pediatric Emergency Care Applied Research Network multicenter trials; respiratory disease and quality research.

**Javier Gonzalez del Rey, MD, MEd**, Professor

**Leadership** Associate Director, Division of Emergency Medicine; Director, Pediatric Residency Training Programs

**Research Interests** Medical education and training.

**Jacqueline Grupp-Phelan, MD, MPH**, Professor

**Leadership** The Richard Ruddy and Barbara Wriston-Ruddy Endowed Chair for Pediatric Research; Associate Director, Division of Emergency Medicine; Director of Research and Prevention Research Focus Team Leader; CCTST Co-Director of Research Training and Career Development

**Research Interests** Suicide screening mental health services and treatment; engagement; health services research; cost-effectiveness; clinical effectiveness and utilization.

**Joseph Luria, MD**, Professor

**Leadership** Associate Director, Division of Emergency Medicine; Medical Director, Emergency Department; Clinical Leadership Team

**Research Interests** Improvement related to ED quality; patient safety, flow.

**Constance McAneney, MD, MS**, Professor

**Leadership** Associate Director, Division of Emergency Medicine; Director, Pediatric Emergency Medicine Fellowship; Director, Education for the Division of Emergency Medicine

**Research Interests** Medical education.

**Lynn Babcock, MD, MS**, Associate Professor

**Leadership** Clinical Research Focus Team Leader; Site PI, HOMERN/PECARN

**Research Interests** Traumatic brain injury (translational research combining neuroimaging, biomarkers, and functional outcomes); injury prevention.

**Berkeley L. Bennett, MD, MS**, Associate Professor

**Leadership** Medical Director of the Northern Kentucky Advocacy Center

**Research Interests** Cardiac injury in association with non-accidental trauma; child abuse.

**Seema Bhatt, MD, MS**, Assistant Professor

**Research Interests** Education; management of dehydration.

**Ted Brenkert, MD**, Assistant Professor

**Research Interests** Utilizing multimedia in resident education.

**Corinne Bria, MD, MEd**, Assistant Professor

**Research Interests** Education; including milestone implementation; reduction of time to expert with simulation as a tool in acute illness and high risk conditions; implementation of sustainable learner evaluation process.

**Terri L. Byczkowski, PhD, MBA**, Associate Professor

**Research Interests** Family centered care in PEM; transition to adult focused care.

**Patricia Chambers, MD**, Assistant Professor

**Leadership** Liberty Campus ED Assistant Medical Director

**Research Interests** Patient experience and communication in healthcare; humanism in medicine.

**Holly Depinet, MD, MPH**, Assistant Professor

**Research Interests** Sedation; sepsis identification and mitigation; decision support in acute appendicitis; health services; global health.

**Judith Dexheimer, PhD**, Assistant Professor

**Research Interests** Clinical decision support applications in the pediatric Emergency Department.

**Cinnamon Dixon, DO, MPH**, Assistant Professor

**Research Interests** Global injury epidemiology and trauma surveillance; mobile health interventions for injury prevention; dog bite prevention education.

**Elena Duma, MD**, Assistant Professor

**Leadership** Clinical Staff Coordinator; Director, PED 4th Year Medical Student Clerkship; Clinical Leadership Team

**Research Interests** Pediatric emergency medicine; child abuse.

**Michelle Eckerle, MD, MPH**, Assistant Professor

**Research Interests** Global health, biomarkers / metabolomics, sepsis care in resource-limited settings.

**Michael FitzGerald, PhD**, Assistant Professor

**Leadership** Education Research Focus Team Leader

**Research Interests** Feedback in medical education; assessment and evaluation of medical learners.

**Todd Florin, MD, MSCE**, Assistant Professor

**Research Interests** Bronchiolitis; pneumonia.

**Gary L. Geis, MD**, Associate Professor

**Leadership** Assistant Medical Director, The Cincinnati Children's Center for Simulation and Research

**Research Interests** Medical simulation; resuscitation; sepsis.

**Michael Gittelman, MD**, Professor

**Leadership** Co-Director, Comprehensive Children's Injury Center; Co-Director, Injury Free Coalition for Kids; Director, Injury Prevention and Advocacy Resident Course

**Research Interests** Injury control; behavior change counseling; community prevention.

**Selena Hariharan, MD, MHSA**, Associate Professor

**Leadership** Clinical Leadership Team; Interim Associate Medical Director, Burnet ED

**Research Interests** Prevention and health care delivery issues.

**Srikant Iyer, MD, MPH**, Associate Professor

**Leadership** Clinical Leadership Team; Assistant Vice President, HNCC Quality and Operations Improvement

**Research Interests** Systems and process improvement; patient flow, acute ED pain management.

**Laurie H. Johnson, MD, MS**, Assistant Professor

**Research Interests** Asthma; resuscitation.

**Stephanie Kennebeck, MD**, Associate Professor

**Leadership** EPIC IT Leadership

**Research Interests** Quality care; informatics use in ED.

**Benjamin Kerrey, MD, MS**, Assistant Professor

**Research Interests** Improving the process and outcomes of intubation of pediatric emergency patients; the use of high-fidelity simulation to study and improve systems of care for critically ill pediatric emergency patients.

**Pamela Lachniet, MD, PhD**, Assistant Professor

**Research Interests** Sports medicine; pediatric emergency medicine.

**Melinda Mahabee-Gittens, MD, MS**, Professor

**Research Interests** Adolescent tobacco prevention; adult tobacco cessation; intervention development.

**Matthew Mittiga, MD**, Assistant Professor

**Leadership** Associate Fellowship Director

**Research Interests** Resuscitation team training and communication; critical care in the pediatric ED; pediatric airway management/complications; resident and fellow PEM education.

**Eileen Murtagh Kurowski, MD, MS**, Assistant Professor

**Research Interests** Emergency care of adult patients with chronic childhood illness; implementation of evidence-based care and quality improvement.

**Wendy Pomerantz, MD, MS**, Professor

**Leadership** Co-Director, Injury Free Coalition for Kids; Co-Director, Safety Resource Center

**Research Interests** Injury and poison prevention; epidemiology; geographic information systems; playground related injuries and emergency medical services.

**Jennifer Reed, MD**, Associate Professor

**Research Interests** Adolescent ED health issues; STI testing and treatment; adolescent research consent challenges; quality improvement.

**Scott Reeves, MD**, Associate Professor

**Leadership** Liberty Campus ED Medical Director; Quality Research Focus Team Leader; Clinical Leadership Team

**Research Interests** Quality care; evidence-based care; acute ED pain management.

**Tara Rhine, MD, MS**, Assistant Professor

**Research Interests** Variations in care and outcomes for children with traumatic brain injury; advancing the emergency department care of very young children with traumatic brain injury.

**Andrea Rinderknecht, MD**, Assistant Professor

**Research Interests** Critical care in the pediatric ED; resuscitation team training and communication; pediatric airway management/complications; health services ED use across diseases/referrals.

**Charles J. Schubert, MD**, Professor

**Leadership** Associate Director, Pediatric Residency Training Program - Global Health

**Research Interests** Global child health and vulnerable populations.

**Hamilton P. Schwartz, MD**, Associate Professor

**Leadership** Medical Director, Transport Team; Medical Director, Statline; Pediatric Medical Director, Cincinnati Fire Department

**Research Interests** Pediatric EMS and transport medicine.

**Brad Sobolewski, MD, MMed**, Assistant Professor

**Leadership** Coordinator Emergency Department Resident Education

**Research Interests** Education, technology and multimedia.

**Richard Strait, MD**, Associate Professor

**Research Interests** Early immunologic response to infectious disease; immunologic response to anaphylaxis; procedural sedation.

**Nathan Timm, MD**, Associate Professor

**Leadership** Cincinnati Children's Emergency Preparedness Officer; Clinical Leadership Team

**Research Interests** Hospital emergency management; quality care; overcrowding in ED.

**Lisa Vaughn, PhD**, Professor

**Research Interests** Cross-cultural psychology issues especially with Latinos, women and children; community-based participatory research; international global studies; social psychology related.

**Shan Yin, MD, MPH**, Assistant Professor

**Leadership** Medical Director, Drug and Poison Information Center

**Research Interests** Pediatric toxicology.

## **Joint Appointment Faculty Members**

**Evaline Alessandrini, MD, MSCE**, Professor (James M. Anderson Center for Health Systems Excellence)

**Research Interests** Outcomes and risk-adjustment in pediatric emergency care; quality measurement.

**Kate Berz, DO**, Assistant Professor (Sports Medicine)

**Research Interests** Sports medicine.



**Gregory Walker, MD**, Assistant Professor (Sports Medicine)

**Research Interests** Physical inactivity in youth; running mechanics and shoe wear in youth and the link to risk for acute and chronic injury in all sports.

### **Clinical Staff Members**

- **Mary Jo-Ellen Erickson, MD**, PEM Trained
- **Catherine Gouldin, MD**, PEM Trained
- **Lisa Lewis, MD**, PEM Trained
- **Margaret Orcutt-Tuddenham, DO, Clinical Leadership Team**, Pediatric and EM Trained; Medical Director, Urgent Cares ;Clinical Leadership Team;
- **Kristen Paddon, MD**, PEM Trained
- **Kirsten Ahrens, MD**
- **Amber Anastasi, MD**
- **Arash Babaoff, MD**
- **Kelly Bennett, MD**
- **Eunice Blackmon, MD**
- **Scott Bolton, MD**
- **Kamali Bouvay, MD**
- **Michael Chua, MD**
- **Lizbeth Dammert Gonzalez, MD**
- **Jenny Lynn DeBruer, MD**
- **Emily Eagen, MD**
- **Nafeh Fananapazir, MD**
- **Kathryn Gieselman, MD**
- **Kerry Gorman, MD**
- **Jennifer Hellmann, MD**
- **Laura Howell, MD**
- **Emily Kelleher, MD**
- **Joanna Nacopoulos, MD**
- **Matthew O'Rourke, MD**
- **Jennifer Porter, MD**
- **Janice Roeder, MD**
- **Rima Rusnak, MD, Clinical Leadership Team**, ED Clinical Leadership Team

- **Lori Schroeder, MD, PhD**
- **Agata Slosar, MD**
- **Kristin Stackpole, MD**
- **Karen Sullivan, MD**
- **Karen Szczepanski, MD**
- **Elizabeth Templin, MD**
- **Gregory Walker, MD**
- **Evan Yeung, MD**
- **Angela Brown, RN, CNP**
- **Katrina Fananapazir, MA, RN, CPNP**
- **Karen Ford, MSN, CPNP**
- **Jamie Gerdemann, CPNP**
- **Kristina Kaufmann, RN, CNP**
- **Jennifer Kelley, MS, CNP**
- **Nataline Lingren, MSN, RN, CPNP**
- **Julie Miller, PhD, MSN, APRN, PNP-BC, FNP-C**
- **Amy Mulcahy, CPNP, MSN**
- **Sara Newman, MSN, CNP**
- **Stacie Richmond, MSN, CNP**
- **Michelle Schrand, MSN, CNP**
- **Molly Stenger, MSN, CPNP**
- **Anika Surratt, MSN, CPNP**
- **Michelle Widecan, DNP, APRN, CPNP, PC/AC, CPEN, Clinical Leadership Team;**

## **Trainees**

- **Kari Schneider, MD, PL-VI, St. Louis Children's Hospital, St. Louis, MO**
- **Steven Chan, MD, PL-VI, Children's Hospital Pittsburgh, Pittsburgh, PA**
- **RoseAnn Cyriac, MD, PL-VI, Washington University, St. Louis, MO**
- **Constance Gong, MD, PL-VI, Emory University School of Medicine, Atlanta, GA**
- **Holly Hanson, MD, PL-V, Northeast Ohio Medical University, Rootstown, OH**
- **Emily Sterrett, MD, PL-VI, Eastern Virginia Medical School, Norfolk, VA**
- **Adam Vukovic, MD, PL-VI, University of Cincinnati College of Medicine, Cincinnati, OH**

- **Paria Wilson, MD**, PL-V, University of Louisville School of Medicine, Louisville, KY
- **Emily Fain, MD**, PL-IV, Cincinnati Children's Hospital Medical Center/University of Cincinnati College of Medicine, Cincinnati, OH
- **Theresa Frey, MD**, PL-IV, Washington University/St. Louis Children's Hospital, St. Louis, MO
- **Erin Hoehn, MD**, PL-IV, Cincinnati Children's Hospital Medical Center/University of Cincinnati College of Medicine, Cincinnati, OH
- **Lauren Riney, DO**, PL-IV, Rainbow Babies and Children's Hospital, Cleveland, OH

## Grants, Contracts, and Industry Agreements

### Grant and Contract Awards

Annual Direct

#### Alessandrini, E

##### Improving the Quality of Pediatric Emergency Care Using an Electronic Medical Record

Agency for Healthcare Research and Quality (Northwestern University Medical School)

R01 HS020270	11/23/2013-9/29/2016	\$44,659
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#### Bennett, B

##### Clinical Decision Rules to Discriminate Bruising Caused by Physical Child Abuse

National Institutes of Health (Lurie Children's Hospital of Chicago)

R01 HD060997	5/30/2011-3/31/2016	\$50,158
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#### Bhatt, S

##### HIV Testing in Ohio Emergency Departments

Ohio Department of Health

1/1/2014-12/31/2016	\$50,000
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#### Florin, T

##### Procalcitonin and Risk Stratification in Pediatric Pneumonia

The Gerber Foundation

1/1/2014-12/31/2016	\$86,363
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#### Gittelman, M

##### Healthy Tomorrows Partnership For Children Program

Health Resources & Services Administration (American Academy of Pediatrics)

	7/1/2013-6/30/2018	\$13,636
<b>Ohio Children's Trust Fund Program</b>		
Ohio Children's Trust Fund (American Academy of Pediatrics)		
	7/1/2013-6/30/2015	\$9,091
<b>Grupp-Phelan, J</b>		
<b>STAT-ED Suicidal Teens Accessing Treatment after an Emergency Department Visit</b>		
Centers for Disease Control and Prevention		
R01 CE002129	9/30/2012-9/29/2015	\$321,824
<b>Optimizing Youth Suicide Risk Screening and Triage in the Emergency Department</b>		
National Institutes of Health (University of Michigan)		
U01 MH104311	9/1/2014-7/31/2017	\$152,633
<b>Teen Alcohol Screening in the Pediatric Emergency Care Applied Research Network</b>		
National Institutes of Health (Rhode Island Hospital)		
	6/1/2014-5/31/2017	\$1,552
<b>Mahabee-Gittens, M</b>		
<b>Pediatric Emergency Department Decision Support System to Reduce Secondhand Smoke</b>		
National Institutes of Health		
R21 CA184337	12/3/2014-11/30/2016	\$114,106
<b>Reed, J</b>		
<b>Decreasing teen STI prevalence through universal emergency department</b>		
National Institutes of Health		
K23 HD075751	5/1/2014-4/30/2018	\$121,748
<b>Rhine, T</b>		
<b>Evidenced Based Clinical Pathway for the Management of Very Young Children with ciTBI</b>		
Ohio Department of Public Safety		
	8/11/2014-6/30/2015	\$37,864
<b>Ruddy, R</b>		
<b>Emergency Medical Services for Children: Network Development Demonstration Project</b>		

9/1/2011-8/31/2015

\$556,344

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**Schubert, C****City of Cincinnati Immunization Project**

City of Cincinnati

1/1/2012-12/31/2016

\$33,374

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**Strait, R****Infant Specific-IgE, Rhinovirus-C Bronchiolitis, and Incident Asthma in MARC-35**

National Institutes of Health (Massachusetts General Hospital)

R01 AI114552

12/1/2014-11/30/2019

\$8,240

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**Prospective Cohort Study of Severe Bronchiolitis and Risk of Recurrent Wheezing**

National Institutes of Health (Massachusetts General Hospital)

U01 AI087881

9/1/2011-8/31/2016

\$2,341

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**Current Year Direct****\$1,603,933**

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**Total****\$1,603,933**

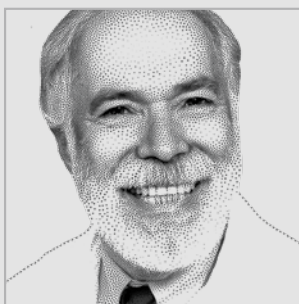
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# Some Antibodies Play ‘Back-Up Defense’ Against Kidney Disease in Mice



Richard Strait, MD



Fred Finkelman, MD

PUBLISHED ONLINE NOV. 2, 2014

*Nature*

Immune system researchers have long known that some antibodies are highly capable of identifying and disabling foreign substances inside the body — called antigens — by clumping them together and removing them from the body by activating complement and binding to antibody surface receptors, called FcγRs, on cells.

In a Nov. 2, 2014, study published online in *Nature*, researchers led by Richard Strait, MD, have discovered that certain types of antibodies — even though they do not activate, complement or interact strongly with activating antibody receptors — still play critical roles in clearing these antigens from the body and preventing disease.

Strait’s study, co-published with several other investigators including senior author and his mentor, Fred Finkelman, MD, Division of Immunobiology, looked specifically at kidney disease associated with the interaction of antibodies with antigen in mice. In normal healthy mice, antigen exposure did not cause disease. However, in mice genetically deficient in IgG1, the most abundant subtype of antibody and roughly equivalent to human IgG4, antigen exposure resulted in developing a fatal kidney disease.

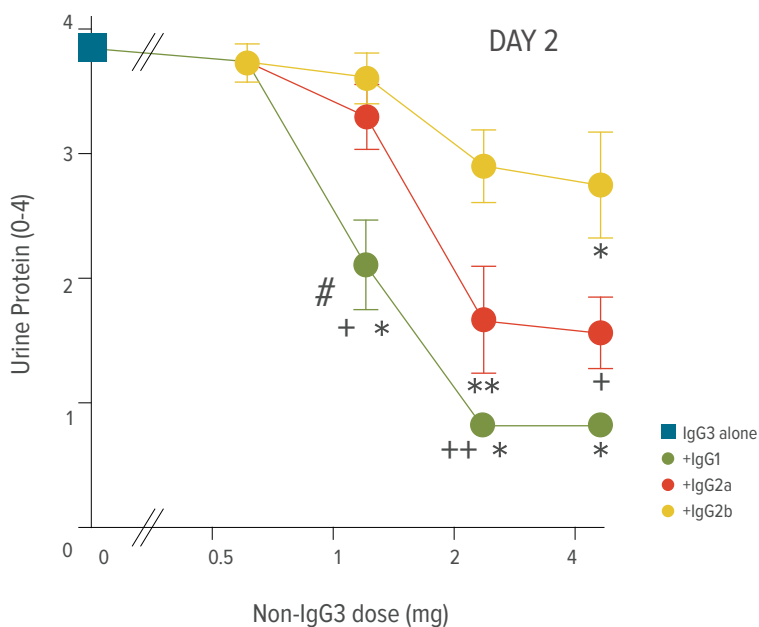
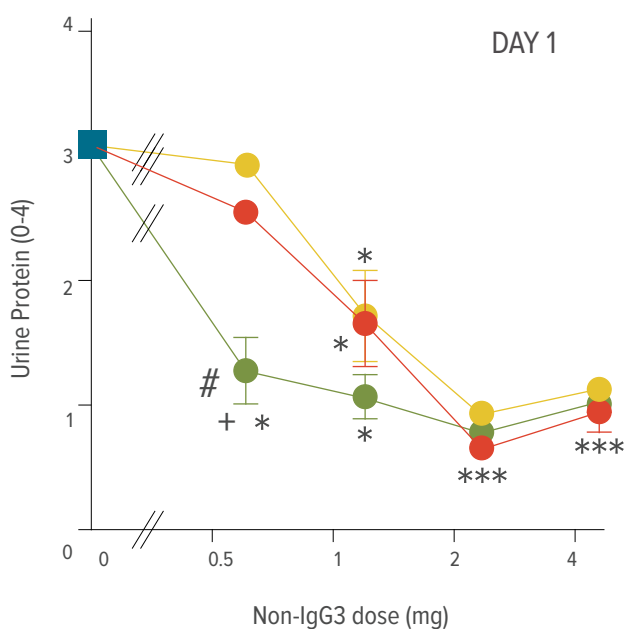
The fatal kidney disease arose secondary to the occurrence of large and numerous cryoglobulin complexes made from the interaction between the antigen and the antibody subtype IgG3. These complexes proceeded to obstruct blood flow to the kidney, eventually causing organ failure and death.

Cryoglobulins also are responsible for kidney damage and other tissue injury in hepatitis C and other diseases. Providing IgG1 back to IgG1-deficient mice prevented cryoglobulin development and saved the mice. Of extreme interest is that the IgG1 performed this disease prevention independent of the usual involvement of the complement system and the antibody receptors.

## RESEARCH AND TRAINING DETAILS

Faculty	42
Joint Appointment Faculty	3
Research Students	6
Support Personnel	47
Direct Annual Grant Support	\$1.6M
Peer Reviewed Publications	77

Strait RT, Posgai MT, Mahler A, Barasa N, Jacob CO, Kohl J, Ehlers M, Stringer K, Shanmukhappa SK, Witte D, Hossain MM, Khodoun M, Herr AB, Finkelman FD. IgG1 protects against renal disease in a mouse model of cryoglobulinaemia. *Nature*. 2015;517(7535):501-504



This figure demonstrates *in vivo* how the addition of antigen-specific IgG1, IgG2a or IgG2b intravenously in increased amounts differentially prevents kidney disease (as measured by proteinuria) invoked by antigen plus antigen-specific IgG3 immune complex precipitation in the capillaries of the glomeruli.